## AMENDMENTS TO THE CLAIMS

The following is a complete listing of revised claims with a status identifier in parenthesis.

### LISTING OF CLAIMS

1. (Currently amended) A method for calibrating an offset interval for received ~~receive~~ echo pulses in a pulse echo level measurement system, said level measurement system having a transducer for transmitting and receiving echo pulses and including a receiver for converting the received pulses into corresponding pulse profile signals, said method comprising the steps of:

(a) transmitting a transmit pulse to a reflective surface;

(b) receiving an echo pulse corresponding to the transmit pulse reflected by the reflective surface;

(c) converting the echo pulse into a pulse profile signal having a leading edge;

(d) defining a first delay interval on the leading edge, said first delay interval corresponding to [[the]] a time interval between ~~in~~ the reception of the echo pulse and the response by the receiver;

(e) defining a second delay interval corresponding to [[the]] a time interval for the leading edge of the pulse profile signal to reach a threshold level; and

(f) summing said first delay interval and said second delay interval to determine the offset interval for the echo pulse;

wherein said offset interval is subtracted from subsequent measurements of the pulse echo level measurement system so as to provide true measurements.

2. (Original) The method as claimed in claim 1, wherein said first delay interval is defined at a first threshold level on the leading edge of the pulse profile signal.

3. (Original) The method as claimed in claim 2, wherein said second delay interval is defined at a second threshold level on the leading edge of the pulse profile signal.

4. (Currently amended) The method as claimed in claim [[3]] 2, wherein said first threshold level comprises 5% of the amplitude of the pulse profile signal.

5. (Currently amended) The method as claimed in claim [[4]] 3, wherein said second threshold level comprises a midway point on the leading edge of the pulse profile signal.

6. (Currently amended) The method as claimed in claim [[5]] 1, wherein said transmit pulse comprises a calibration transmit pulse having a known

characteristic, and said reflective surface is located at a predetermined distance from the transducer.

7. (Currently amended) A pulse-echo acoustic ranging system comprising:

(a) a transducer for emitting acoustic pulses and detecting reflected acoustic pulses;

(b) a controller having a receiver component and a transmitter component;

(c) said transducer having an input port operatively coupled to said transmitter component and being responsive to said transmitter component for emitting said acoustic pulses, and said transducer including an output port operatively coupled to said receiver component for outputting reflected acoustic pulses coupled by said transducer;

(d) said receiver component converting said reflected acoustic pulses into pulse profile signals, said pulse profile signals having a leading edge and an amplitude; and

(e) said controller including a program component for defining a first delay interval on the leading edge, said first delay interval corresponding to the time interval between the arrival of the reflected acoustic pulse and the response by the receiver, and another program component for defining a second delay interval corresponding to the time interval for the leading edge of the pulse profile signal to reach a threshold level, and a program component for

summing said first delay interval and said second delay interval to define an offset interval for the reflected acoustic pulse.

8. (Original) The pulse-echo acoustic ranging system as claim in claim 7, wherein said first delay interval is defined at a first threshold level on the leading edge of the pulse profile signal.

9. (Original) The pulse-echo acoustic ranging system as claim in claim 8, wherein said second delay interval is defined at a second threshold level on the leading edge of the pulse profile signal.

10. (Currently amended) A method for calibrating an offset interval for received ~~receive~~ echo pulses in a pulse echo level measurement system, said level measurement system having a transducer for transmitting and receiving echo pulses and including a receiver for converting the received pulses into corresponding pulse profile signals, said method comprising the steps of:

(a) transmitting a transmit pulse to a reflective surface;

(b) receiving an echo pulse corresponding to said transmit pulse reflected by the reflective surface;

(c) converting said echo pulse into a pulse profile signal having a leading edge;

(d) determining a function describing the leading edge of said pulse profile signal:

(e) using said function to calculate a first delay interval on said leading edge, said first delay interval corresponding to a time interval ~~in~~ between the reception of said echo pulse and a response by the receiver;

[[(e)]] (f) using said function to calculate a second delay interval corresponding to a time interval for the leading edge of said pulse profile signal to reach a threshold level; and

[[(f)]] (g) summing said first delay interval and said second delay interval to determine the offset interval for the echo pulse;

wherein said offset interval is subtracted from subsequent measurements of the pulse echo level measurement system so as to provide true measurements.

11. (Original) The method as claimed in claim 10, wherein said first delay interval is defined at a first threshold level on the leading edge of said pulse profile signal.

12. (Original) The method as claimed in claim 11, wherein said second delay interval is defined at a second threshold level on the leading edge of said pulse profile signal.

13. (Currently amended) The method as claimed in claim [[12]] 11, wherein said first threshold level comprises 5% of the amplitude of said pulse profile signal.

14. (Currently amended) The method as claimed in claim [[12]] 12, wherein said second threshold level comprises a midway point on the leading edge of said pulse profile signal.

15. (Currently amended) A method for calibrating an offset interval for received ~~receive~~ echo pulses in a pulse-echo level measurement system, said level measurement system having a transducer for transmitting and receiving echo pulses and including a receiver for converting the received pulses into corresponding pulse profile signals, said method comprising the steps of:

(a) transmitting a transmit pulse to a reflective surface;

(b) receiving an echo pulse corresponding to said transmit pulse reflected by said reflective surface;

(c) converting said echo pulse into a pulse profile signal having a leading edge;

(d) defining a static delay interval on said leading edge, said ~~first~~ static delay interval corresponding to a time interval between the reception of said echo pulse and a response by the receiver;

(e) defining a dynamic delay interval corresponding to a time interval for the leading edge of said pulse profile signal to reach a threshold level; and

(f) summing said static delay interval and said dynamic delay interval to determine the offset interval for said echo pulse;

wherein said offset interval is subtracted from subsequent measurements of the pulse echo level measurement system so as to provide true measurements.

16. (Original) The method as claimed in claim 15, wherein said dynamic delay interval is defined according to the response characteristic of the transducer.

17. (Currently amended) The method as claimed in claim 16, wherein said dynamic delay interval is further defined according to the response characteristic of the receiver.

18. (Original) The method as claimed in claim 15, wherein said transmit pulse comprises a calibration transmit pulse having a known characteristic, and said reflective surface is located at a predetermined distance from the transducer.

19. (Currently amended) A pulse-echo acoustic ranging system comprising:

a transducer for emitting acoustic pulses and detecting reflected acoustic pulses;

a controller having a receiver component and a transmitter component;

said transducer having an input port operatively coupled to said transmitter component and being responsive to said transmitter component for emitting said acoustic pulses, and said transducer including an output port operatively coupled to said receiver component for outputting reflected acoustic pulses coupled by said transducer;

said receiver component converting said reflected acoustic pulses into pulse profile signals, said pulse profile signals having a leading edge and an amplitude; and

said controller including a program component for defining a static delay interval on the leading edge corresponding to the time interval between the arrival of the reflected acoustic pulse and the response by the receiver, and another program component for defining a dynamic delay interval corresponding to the time interval for the leading edge of the pulse profile signal to reach a threshold level, and a program component for summing said static delay interval and said dynamic delay interval to define an offset interval for the reflected acoustic pulse.

20. (Currently amended) A pulse-echo acoustic ranging system comprising:

transceiver means for transmitting acoustic pulses and receiving reflected acoustic pulses;

pulse generating means for generating acoustic pulses, said pulse generating means being operatively coupled to said transceiver means for launching an incident acoustic pulse towards a target;

pulse detection means operatively coupled to said transceiver means for detecting a reflected acoustic signal corresponding to said incident acoustic pulse bouncing off said target, and means for converting said reflected acoustic signal into a pulse profile signal having a leading edge and an amplitude; and

pulse analysis means for defining a first delay interval in said leading edge of said pulse profile signal corresponding to a time interval between the arrival of said reflected acoustic pulse and a response delay by the pulse detection means, said pulse analysis means further defining a second delay interval corresponding to [[said]] a time interval for the leading edge of said pulse profile signal to reach a threshold level, wherein said first delay interval and said second delay interval together define an offset interval for said reflected acoustic pulse.

21. (Original) The pulse-echo acoustic ranging system as claimed in claim 20, wherein said first delay interval is defined at a first threshold level on the leading edge of said pulse profile signal.

22. (Original) The pulse-echo acoustic ranging system as claimed in claim 21, wherein said second delay interval is defined at a second threshold level on the leading edge of said pulse profile signal.

23. (Currently amended) The pulse-echo acoustic ranging system as claimed in claim [[22]] 21, wherein said first threshold level comprises 5% of the amplitude of said pulse profile signal.

24. (Currently amended) The pulse-echo acoustic ranging system as claimed in claim [[25]] 20, wherein said pulse analysis means further includes extrapolation means for defining a function describing the leading edge of said pulse profile signal.

25. (Original) The pulse-echo acoustic ranging system as claimed in claim 24, wherein said first delay interval is determined based on said function.

26. (Currently amended) The pulse-echo acoustic ranging system as claimed in claim [[25]] 24, wherein said second delay interval is determined based on said function.